

REMARKS

As a preliminary matter, Applicant thanks the Examiner for the allowance of claim 12. Applicant notes, however, that the Office Action Summary of the present Office Action mistakenly lists claim 15 as being allowed (but also rejected).

Claims 2, 10, and 15 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Ranjan et al. (U.S. 5,840,394) in view of Chuang et al. (U.S. 6,139,981). Applicant respectfully traverses this rejection because neither of the cited references, whether taken alone or together, teaches or suggests a magnetic recording medium that includes both a Cr-based underlayer and a CoCr-based magnetic layer including Cr in a concentration of less than 5at%, as in independent claim 2 of the present invention, as last amended.

The Examiner incorrectly asserts that Ranjan is silent regarding a Cr-based underlayer. In fact, Ranjan is not silent on this issue (discussed further below). The Examiner then relies only upon Chuang for teaching the underlayer. The Examiner's rationale appears to be that Chuang's underlayer can be added to the teachings of Ranjan, because Ranjan teaches a CoCr-based magnetic layer having less than 5at% Cr and a sputtered NiP layer, and Chuang includes a Cr-based underlayer between a sputtered NiP seed layer and a CoCr-based magnetic layer. Applicant does not dispute that Chuang teaches a Cr-based underlayer between an NiP layer and a CoCr-based magnetic layer. Applicant does dispute, however, that Chuang teaches to include such an underlayer in combination

with the specific CoCr-based magnetic layer taught by Ranjan. In fact, neither Ranjan nor Chuang does not supports the proposed combination.

Chuang actually teaches away from the Examiner's proposed combination. Although Chuang does not generally address the atomic composition of the CoCr-based magnetic layer, Chuang does specifically teach one example that such a magnetic layer should include Cr in at least 15at%. (See col. 5, TABLE 1). Chuang otherwise provides no teaching or suggestion that the percentage composition of Cr in the magnetic layer should be decreased to less than the disclosed amount, which is at least 3 times greater than the amount recited in claim 2 of the present invention. The mere fact that both Chuang and Ranjan teach a sputtered NiP layer does not automatically justify the inference that all other features of the two different disclosures are interchangeable.

In fact, the respective elements taught by Ranjan and Chuang are not interchangeable, and there is no obvious motivation taught or suggested within either reference to make the Examiner's proposed combination. As discussed above, the Examiner is incorrect regarding her assertion that Ranjan "is silent with regard to the presence of a Cr underlayer." Ranjan actually does describe a Cr underlayer at col. 1, lines 65-66, and specifically teaches away from its inclusion.

Ranjan states that Cr underlayers can lead to a poor crystal lattice structure in the portion of the magnetic layer formed over such an underlayer. (See col. 1, line 61 through col. 2, line 4). It is inappropriate for the Examiner to then assert that a Cr underlayer

can be combined with the embodiments taught by Ranjan, when Ranjan itself specifically describes problems associated with the Cr underlayer, and chooses not include a Cr underlayer in its embodiments. The only proper inference that can be made from Ranjan's teachings is that Ranjan chose against including a Cr underlayer between the two layers as proposed by the Examiner. Section 2143.01 of the MPEP requires that the Examiner prove, not only that the references can be combined, but also where the references themselves teach the affirmative desirability of the proposed combination. Accordingly, because both of the cited references teach away from the proposed combination, the Section 103 rejection is respectfully traversed.

The rejection is further traversed because the proposed combination would still fail to accomplish some of the basic goals of the present invention or realize its advantages. As described in the present Specification, Cr concentration in the magnetic layer as a whole can be reduced to less than 5at% to reduce media noise. Ranjan, on the other hand, does not actually reduce Cr concentration in the magnetic layer as a whole. Although Ranjan teaches an upper and a lower magnetic layer, the two portions effectively act as a single magnetic layer, with different Cr concentrations in the two portions. Only the bottom portion includes Cr of less than 5at%, but the top portion includes Cr of up to 7.5at%, and therefore the entire magnetic layer, taken as a whole, would include a Cr concentration of greater than 5at%. This conclusion is reasonable because Ranjan further teaches that the thickness of the upper portion of its magnetic layer is significantly larger than that of the lower area. When

considering the obviousness of combining these references, Ranjan's entire magnetic layer as a whole must be taken into consideration.

Considering Ranjan's as a whole therefore, it becomes clear that Ranjan is drawn to a different purpose than the present invention. Ranjan describes a major goal to improve crystal lattice structure, and that a partial reduction of Cr concentration does not inhibit the crystal lattice. For those reasons, Ranjan reduces Cr concentration in only the lower area of its magnetic layer. The majority of Ranjan's magnetic layer, however, has a concentration of Cr greater than 5at%, and therefore Ranjan would not see the same reduction in media noise as the present invention, even if the reference could somehow be properly combined with the teachings of Chuang. Accordingly, because even the proposed combination of references could not achieve the significant advantages realized by the present invention, the obviousness rejection is further traversed.

For all of the foregoing reasons, Applicant submits that this Application, including claims 2, 10, 12, and 15, is in condition for allowance, which is respectfully requested. The Examiner is invited to contact the undersigned attorney if a further interview would expedite prosecution.


Respectfully submitted,
GREER, BURNS & CRAIN, LTD.

Customer No. 24978

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300 South Wacker Drive
Suite 2500
Chicago, Illinois 60606
Telephone: (312) 360-0080
Facsimile: (312) 360-9315

By


Josh C. Snider
Registration No. 47,954